UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/448,277	11/24/1999	WOONG SIK CHOI	8733.20015	4859

30827   7590   05/21/2003

MCKENNA LONG & ALDRIDGE LLP
1900 K STREET, NW
WASHINGTON, DC   20006

EXAMINER
QI, ZHI QIANG

ART UNIT	PAPER NUMBER
2871	

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on <u>15 April 2003</u> .

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☑ Claim(s) <u>1-22</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☑ Claim(s) <u>1,3-6,9-12,15-18 and 20-22</u> is/are rejected.

7)☒ Claim(s) <u>2,7,8,13,14 and 19</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

   If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All b)☐ Some * c)☒ None of:

   1.☒ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____ .

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).
   * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

   a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)		4)☐ Interview Summary (PTO-413) Paper No(s). _____ .	
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)		5)☐ Notice of Informal Patent Application (PTO-152)	
3)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .		6)☐ Other: _____ .	

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over

US 6,226,057 (Lee) in view of US 5,953,088 (Hanazawa et al).

Claims 1 and 12, Lee discloses (col. 3, line 45 – col.7, line 45; Figs.2A and 2B)

a liquid crystal display device comprising:

-       substrate (12);

-       first and second gate lines (14m, 14m-1) formed on the substrate (12);

-       first and second source bus lines (data lines) (22n-1, 22n) intersecting the

first and second gate lines (14m, 14m-1) so as to define a pixel region, wherein each

of the first data line (22n-1) and the second data line (22n) has longitudinally

separated first and second regions (i.e., the data lines are overlapped by the pixel

electrode 26n);

-       insulating film (28) covering the first and the second gate lines (14m, 14m-1)

and the first and the second data lines (22n-1, 22n);

-       pixel electrode (26n) disposed in the pixel region, the pixel electrode (26n)

overlapping a region of the first data line (22n-1), the pixel electrode (26n)

overlapping a region of the second data lines (22n);

-        switching element (TFT, T1) disposed in the pixel region and connected between the second gate line (14m-1) and the pixel electrode (26n).

Lee does not expressly disclose that one of the first and second regions of the first data line and one of the first and second regions of the second data line are not overlapped by the pixel electrode, i.e., the adjacent pixel electrodes are not overlapped each other.

However, Hanazawa discloses (col.4, lines 11-27; Fig.3) that the adjacent pixel electrodes (51) and (54) are not overlapped, and the pixel electrode (51) overlaps the a region of the first data line (50a) and a region of the second data line (50b), such that the capacitive coupling between the pixel electrode (51) and the data line (50a) and the capacitive coupling between the pixel electrode (54) and the data line (50a) can be reduced uniformly. As a result, the influence of the parasitic capacitance corresponding to the capacitive coupling can be suppressed to a minimum, so as to improve the image quality. Hanazawa indicates (col.1, lines 34-40) that the image quality of the liquid crystal display device is liable to be influenced by a parasitic capacitance corresponding to a capacitive coupling between the signal line and the pixel electrode.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the adjacent pixel electrodes are not overlapped as claimed in claims 1 and 12 for improving the image quality.

3.   Claims 3-6, 9-11,15-18 and 20-22 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Lee and Hanazawa as applied to claims 1 and 12 above, and further

in view of US 5,757,444 (Takemura).

Claims 3, 9 and 20, using reflective pixel electrode in a reflection type LCD was

common and known in the art as employing high reflective material such as aluminum

as the pixel electrode for achieving thin and light-weight and low electricity consuming.

Therefore, it would have been obvious to those skilled in the art at the time the

invention was made to use reflective pixel electrode as claimed in claims 3, 9, 14 and

20 for achieving low electricity consuming.

Claims 4, 10, 15, and 21, Takemura discloses (col.7, lines 41-45) that the overlap

between the picture-element electrode and the data line is also symmetrical between

right and left side (i.e., the first and the second regions, the right side and the left side

overlapping regions, are approximately the same), and by proper performing the

alternation of the data line as described above, the cross-talk is completely removed.

Therefore, it would have been obvious to those skilled in the art at the time the

invention was made to arrange the first and the second region are approximately the

same as claimed in claims 4, 10, 15 and 21 for removing the cross-talk.

Claims 5 and 16, Takemura discloses (col.6, lines 48-67; Fig.4) that the signal to

be applied to the data lines Ym and Ym+1 have the same pulse height and opposite

polarity (alternating current driving method), and thus affection of these data lines on the

picture-element electrode (pixel electrode) is mutually offset. Takemura indicates that as

a result, there occurs no cross-talk which would be induced by the coupling between the data line and the picture-element electrode (pixel electrode).

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to use an alternating current driving method as claimed in claims 5 and 16 for suppressing the cross-talk phenomenon.

Claims 6, 11, 17 and 22, Lee discloses (col.4, lines 30-34; Fig.2A) that the pixel electrode (26n) are beyond the adjacent source bus lines (data lines) arranged at left and right sides thereof and then extended to edges of the adjacent pixel electrodes in row direction, i.e., the pixel electrode extends over the date lines.

Claim 18, Lee discloses (col.4, lines 30-34; Fig.2A) that the pixel electrode (26n) are beyond the adjacent source bus lines (data lines) arranged at left and right sides thereof and then extended to edges of the adjacent pixel electrodes in row direction, i.e., the pixel electrode extends over the date lines.

Allowable Subject Matter

4.   Claims 2, 7-8,13-14 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record neither teaches nor discloses that a liquid crystal display device comprises various elements, more specifically, as the following:

the pixel electrode overlaps the first and second data lines by whole width of the data lines and by a substantially one-half length of each one of the first and second the data lines [claims 2, 7-8,13-14 and 19].

The closest reference US 6,226,057 (Lee) discloses (Fig.2A) that the pixel electrode (26n) overlaps the first and the second data lines (22n-1, 22n) by whole width of the data lines, but it does not teach that the pixel electrode overlaps the data lines by a substantially one-half length of the data lines. The claim 7 is dependent on the claim 2, so that the claims 2 and 7 contain the subject matter described above.

Response to Arguments

5.   Applicant's arguments filed on Apr.24, 2002 have been fully considered but they are not persuasive.

Applicant's **only** arguments are as follows:

1) The reference Hanazawa does not teach or suggest one of the first and second logitidinally separated regions of the first data line and one of the first and second logitidinally separated regions of the second data line are not overlapped by the pixel electrode as claimed in claims 1 and 12, i.e., the adjacent pixel electrodes are not overlapped each other.

Examiner's responses to Applicant's **only** arguments are as follows:

1) the reference Hanazawa is a secondary reference and discloses (col.4, lines 11-27; Fig.3) that the adjacent pixel electrodes (51) and (54) are not overlapped, and the pixel electrode (51) overlaps the a region of the first data line (50a) and a region of

the second data line (50b), such that the capacitive coupling between the pixel

electrode (51) and the data line (50a) and the capacitive coupling between the pixel

electrode (54) and the data line (50a) can be reduced uniformly. As a result, the

influence of the parasitic capacitance corresponding to the capacitive coupling can be

suppressed to a minimum, so as to improve the image quality. Hanazawa indicates

(col.1, lines 34-40) that the image quality of the liquid crystal display device is liable to

be influenced by a parasitic capacitance corresponding to a capacitive coupling

between the signal line and the pixel electrode.

Conclusion

6.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (703) 308-6213.

       Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Mike Qi
May 6, 2003